

Reply to Final Office Action
Dated April 1, 2004

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Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1 (currently amended). A pre-formed insulation module for insulating a process component having opposed longitudinally extending contacting surfaces extending along a length thereof and terminal contacting surfaces at each end thereof comprising:

(a) at least one first inner insulation layer being constituted of an a flexible insulation material having a capacity to withstand thermal shock under cryogenic conditions and having one surface proximate to a surface of a component to be insulated;

(b) at least one second outer insulation layer disposed radially outwardly of said inner insulation layer;

(c) at least one water vapour barrier layer;

(d) a cladding layer distinct from said at least one water vapour barrier layer; and

(e) at least one contraction/expansion joint positioned between the ends of the module, said contraction/expansion joint comprising a gap recess extending radially outwardly from said one surface and terminating in spaced apart relation to said cladding layer.

2 (previously presented). The module of claim 1 including connection means for connecting said module to an adjacent module for insulating said component.

3 (original). The module of claim 2 wherein said connection means are circumferentially and longitudinally disposed relative to a longitudinal axis of said module.

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4 (previously presented). The module of claim 3 wherein said circumferentially disposed connection means are formed in the terminal contacting surfaces and the longitudinally disposed connection means are formed in said longitudinally extending contacting surfaces.

Claims 5-13 (canceled).

14 (previously presented). The module of claim 3 wherein said connection means are tongue and groove joints, complementary joints being formed at each end of the module.

15 (previously presented). The module of claim 4 wherein said connection means are tongue and groove joints, complementary joints being formed at each end of the module.

16 (previously presented). The module of claim 1 wherein said inner insulation layer is formed from a first insulation material and said outer insulation layer is formed from a second insulation material said first insulation material having substantially different thermal shock characteristics from those of said second insulation material.

17 (previously presented). The module of claim 16 wherein said at least one insulation layer is formed of polyimide foam, then at least one outer layer is formed of polyisocyanurate resin and the water vapour barrier layer, radially outwardly disposed from said second outer insulation layer, is formed from a material selected from the group consisting of metallic foils, polymeric films, mastics, and fibre-reinforced such materials.

Claim 18 (canceled).

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19 (previously presented). The module of claim 1 wherein said contraction/expansion joint is a recess having a terminal end formed in said at least one second outer insulation layer.

20 (previously presented). The module of claim 1 wherein a contraction/expansion joint is formed in terminal contacting surfaces of the module at each end thereof.

Claims 21-23 (canceled).

24 (previously presented). The module of claim 2 wherein said inner insulation layer is formed from a first insulation material and said outer insulation layer is formed from a second insulation material said first insulation material having substantially different thermal shock characteristics from those of said second insulation material.

25 (previously presented). The module of claim 3 wherein said inner insulation layer is formed from a first insulation material and said outer insulation layer is formed from a second insulation material said first insulation material having substantially different thermal shock characteristics from those of said second insulation material.

26 (previously presented). The module of claim 4 wherein said inner insulation layer is formed from a first insulation material and said outer insulation layer is formed from a second insulation material said first insulation material having substantially different thermal shock characteristics from those of said second insulation material.

Claims 27-29 (canceled).

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30 (currently amended). A pre-formed insulation module for insulating a process component, said module comprising longitudinally extending module portions having opposed longitudinally extending contacting surfaces extending along a length thereof and terminal contacting surfaces at each end thereof, said module portions comprising:

(a) at least one first inner insulation layer being constituted of an a flexible insulation material having a capacity to withstand thermal shock under cryogenic conditions and having one surface proximate to a surface of a component to be insulated;

(b) at least one second outer insulation layer disposed radially outwardly of said inner insulation layer;

(c) at least one water vapour barrier layer;

(d) a cladding layer distinct from said at least one water vapour barrier layer; and

(e) a plurality of contraction/expansion joints positioned between the ends of the module, said contraction/expansion joints comprising radially extending gaps recesses located in each of said module portions, said gaps recesses in one said module portion being spaced apart longitudinally relative to said gaps recesses in another said module portion.

31 (currently amended). A preformed insulation module according to claim 1, wherein said gap recess extends radially outwardly 2/3 of the distance between said one surface and said cladding layer.

32 (currently amended). A preformed insulation module according to claim 30, wherein said gaps recesses extend radially outwardly 2/3 of the distance between said one surface and said cladding surface.

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33 (new). The module of Claim 1, wherein said recess is occupied by a flexible material.

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